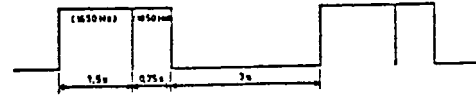


3. Tolerances: Timing $\pm 15\%$; Frequency $\pm 6\text{Hz}$.
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GI 1/2 (Apparatus operating in accordance with CCITT Recommendations T.2 and T.3)

Format



1. To indicate the apparatus is in the receive mode and is capable of receiving at least one page in the T.2 or T.3 mode. The apparatus is capable of adjusting automatically to the speed of the transmitter.

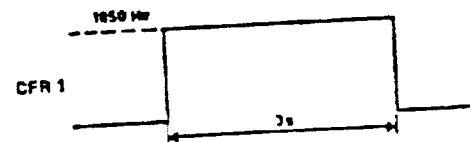
2. The signal is repeated until detection of CC or timer T1 elapses.

3. Tolerances: Timing $\pm 15\%$; Frequencies $\pm 6\text{Hz}$.

4.3.1.2 Confirmation to Receive Signals (CFR)

CFR 1 (Apparatus operating in accordance with CCITT Recommendation T.2)

Format



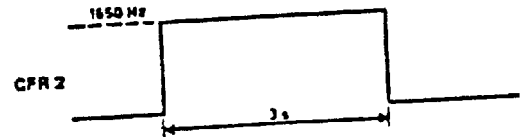
Function

1. To indicate the receiver has phased and is ready to receive at least one page in the T.2 mode. The signal must start after the completion of the phasing signal at the receiver with a maximum delay of one second.

2. Tolerances: Timing 15%; Frequency $\pm 6\text{Hz}$.

CFR 2 (Apparatus operating in accordance with CCITT Recommendation T.3)

Format



Function

1. To indicate that the receiver has phased and is ready to receive at least one page in the T.3 mode. The signal must start after the completion of the phasing signal at the receiver with a maximum delay of one second.
2. Tolerances: Timing $\pm 15\%$; Frequency $\pm 6\text{Hz}$.

4.3.1.3 Message Confirmation Signal

MCF 1 (Apparatus operating in accordance with CCITT Recommendation T.2)

Format - The same frequency and duration as for CFR 1.

Function

1. To indicate that the receiver has received one page in T.2 mode.
2. Tolerances: Timing $\pm 15\%$; Frequency $\pm 6\text{Hz}$.

MCF 2 (Apparatus operating in accordance with CCITT Recommendation T.3)

Format - The same frequency and duration as for CFR 2.

Function

1. To indicate that the receiver has received one page in the T.3 mode.

2. Tolerances: Timing $\pm 15\%$; Frequency $\pm 6\text{Hz}$.

Note. The MCF signal must start a maximum of 0.5 seconds after the completion of the EOM signal (see paragraph 4.3.2.4) at the receiver and continue for 3 seconds.

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4.3.2 Facsimile Transmitter Signals (signals transmitted by transmitter)

4.3.2.1 Group Command Signals (GC)

GC1 - 1300 Hz ± 32 Hz for a duration of more than 1.5 seconds and less than 10 seconds.

GC2 - 2100 Hz ± 10 Hz for a duration of more than 1.5 seconds and less than 10 seconds.

Function

To indicate to the receiver, the Group that the transmitter has chosen. GC signal starts at the end of the Capabilities Identification signal with a maximum delay of 1 second as measured on the line at the transmitter.

4.3.2.2 Line Conditioning Signals (LCS)

Format - See 4.3.2.3 b) (Group 2 Phasing) below.

Function

1. To enable a receiver to equalize the line.
2. This is an optional signal and non-transmission should not affect compatibility.

4.3.2.3 Phasing

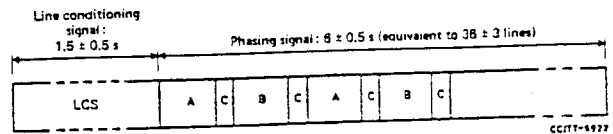
Format

a) Group 1

Alternating black and white signals sent through the Group 1 modulation system for $15 \pm$ seconds where the black signal is of a duration of 94-96% of the total scanning line time and the white signal occupies the remaining 4-6%. The leading edge of the white signal shall be 2 to 3% in advance of the middle of the dead sector.

b) Group 2

Alternating white and black signals sent through the Coup Z modulation system for 6 ± 0.5 seconds where the white signal is of a duration of 94-96% of the total scanning line time and the black signal occupies the remaining 4-6%. The leading edge of the black signal shall be 2 to 3% in advance of the middle of the dead sector.



LCS = line conditioning signal: 1100 ± 50 Hz. Transmission of this signal is optional
A = carrier in 0° phase for 94-96% of total scanning line length
B = as A but may be in 180° phase
C = no signal (at least 25 dB below the carrier) for the remaining 4-6% of scanning line length

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Function

To allow the receiving apparatus to align the received image properly on the recording medium.

4.3.2.4 End-of-Message Signal (EOM)

Format

Frequency $1100 \text{ Hz} \pm 38 \text{ Hz}$. Timing 3 seconds $\pm 15\%$ immediately following the message.

Function

To indicate Phase C has been completed.

4.3.3 Common Signals

4.3.3.1 Procedure Interrupt Signal (PIS) (Applicable in both

directions)

Format

462 Hz ± 1.5 Hz for 3 seconds minimum.

Function

1. To stop a distant machine
2. May be used as an operator recall.

Note 1. This is an optional signal.

Note 2. Some machines use this signal as a disconnect signal only when the receiver detects this signal immediately after transmitting MCF or transmitting MCF/GI and, in either case, before a subsequent GI.

Note 3. The satisfactory operation of the PIS signal cannot be guaranteed in, for example, the presence of echo suppressors.

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4.3.3.2 Called Station Identification (CED)

At 1.8 to 2.5 seconds after the called station is connected to the line, it sends a continuous 2100 Hz ± 15 Hz answering tone for a duration of not less than 2.6 seconds and not more than 4.0 seconds.

The answering station delays for a period of 75 ± 20 milliseconds after terminating tone before transmitting further signal

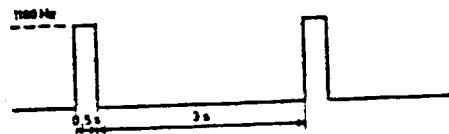
Function

To indicate a called non-speech terminal.

Format

4.3.3.3 Calling Tone (CNG)

Format



Tolerances: Timing $\pm 15\%$; Frequency ± 38 Hz

Tolerances: Timing $\pm 15\%$; Frequency $\pm 38\text{Hz}$

Function

1. To indicate a calling non-speech terminal. This signal is mandatory for automatic units and optional for manual units.
2. To indicate that the apparatus is in the transmit mode and is ready to transmit on receipt of the appropriate GI.
3. Where an apparatus is capable of sending more than one document without the necessity of operator assistance, this signal may be transmitted between documents while the transmitter is waiting for the appropriate GI. It would indicate to an operator that the transmitter was still connected to line.

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5.0 Binary Coded Signalling For Facsimile Procedure

For Group 1 and Group 2 machines that require additional facilities to those provided by the procedures described in Section 4 (of this Standard), the binary coded control procedures should be transmitted in a synchronous mode at 300 bits per second.

For Group 3 machines, operating in accordance with EIA Standard RS 465, 300 bits per second is the standard signalling rate for the transmission of binary coded procedural data. Additionally, signalling of the binary coded procedural data at 2400 bits per second is allowed as an option.

Except as otherwise noted, the binary-coded control

procedures should be transmitted in a synchronous mode on the general switched telephone network at 300 bits per second $\pm 0.01\%$ utilizing the following characteristics:

Symbol "1" Frequency: 1650 ± 6 Hz
 Symbol "0" Frequency: 1850 ± 6 Hz

Signal generators should have a distortion not exceeding 1.0 percent and the control signal receivers should accept signals with a distortion of up to 40 percent

Note 1. - For Group 3 machines, as defined in EIA Standard RS 465, the transmission of training, TCF, and all in-message signals, shall be at the data rate of the high-speed message channel.

Note 2. - It is acknowledged that existing equipments may not conform in all aspects to this Standard. Other methods may be possible as long as they do not interfere with the standard operation.

Note 3. - Transmission of signals utilizing the modulation system described above should be followed by a delay of 75 ± 20 milliseconds before the signalling, utilizing a different modulation system, commenced (e.g. the delay between DCS and the training sequence)

Note 4. - The transmission of signalling utilizing the signalling systems of RS 465 should be followed by a delay of 75 ± 20 milliseconds before the signalling, utilizing a different modulation system, commences. (e.g. the delay between RTC and MPS)

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5.1 Description

Phases B, C and D

Case 1: Calling station wishes to transmit (see also Figure 7)

Calling Station	Called Station
	1. Transmit DIS
2. DIS detected	
3. Transmit DCS	4. DCS detected
	5. Select mode
6. Transmit Phasing/Training	7. Detect Phasing/Training
	8. Transmit CFR
9. Detect CFR	
10. Transmit message	11. Receive message
12. At end of message send either: a) EOM or b) EOP or c) MPS or d) PRI-Q	
	13. Detect EOM, EOP, MPS or PRI-Q
	14. Transmit one of the confirmation signals of post-message responses (see G.1 - G.5 of 5.3.6.1)

Note - Binary coded signals must be preceded by a preamble (see 5.3.1 below).

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Case 2: Calling station wishes to receive (see 2150 Figure 8)

Note - Binary coded signals must be preceded by a preamble (see 5.3.1 below).

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Calling station wishes to receive (see also Figure 8)

Calling Station	Called Station
	1. Transmit DIS
2. DIS detected	
3. Transmit DTC	
	4. DTC detected
	5. Transmit DCS
6. DCS detected	
7. Select mode	
	8. T r a n s m i t Training/Phasing

9. Detect Training/Phasing

10. Transmit CFR

11. Detect CFR

12. Transmit message

13. Receive message

14. At end of
message send

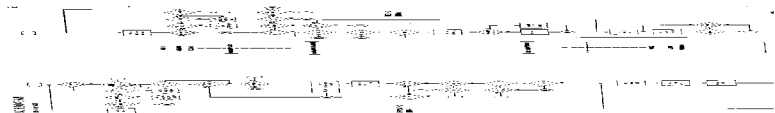
either:

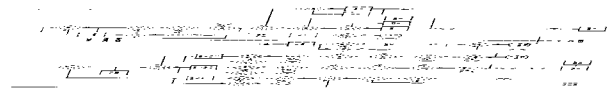
- a) EOM or
- b) EOP or
- c) MPS or
- d) PRI-Q

15. Detect EOM, EOP, MPS or PRI-Q

16. Transmit one of the confirmation signals of post-message responses (see C.1 - G.5 of 5.3.6.1)

Note - Binary coded signals must be preceded by a preamble (see 5.3.1 below).





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